

2SD1938(F)

Silicon NPN epitaxial planar type

For low-voltage output amplification

For muting

For DC-DC converter

■ Features

- Low ON resistance R_{on}
- High forward current transfer ratio h_{FE}
- Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing

■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	50	V
Collector-emitter voltage (Base open)	V_{CEO}	20	V
Emitter-base voltage (Collector open)	V_{EBO}	25	V
Collector current	I_C	300	mA
Peak collector current	I_{CP}	500	mA
Collector power dissipation	P_C	200	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

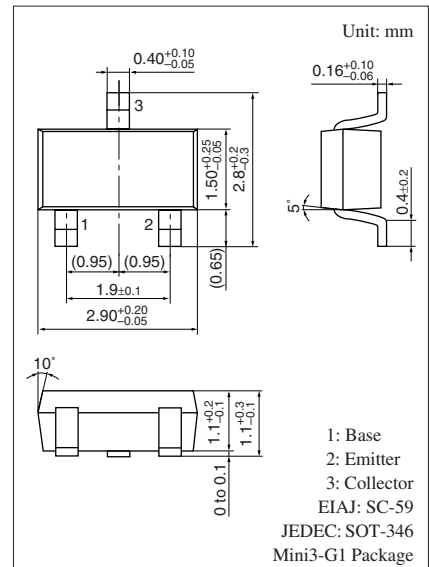
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 1 \text{ mA}, I_B = 0$	20			V
Base-emitter voltage	V_{BE}	$V_{CE} = 2 \text{ V}, I_C = 4 \text{ mA}$		0.6		V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 50 \text{ V}, I_E = 0$			0.1	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 25 \text{ V}, I_C = 0$			0.1	μA
Forward current transfer ratio *1	h_{FE}	$V_{CE} = 2 \text{ V}, I_C = 4 \text{ mA}$	500		2500	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 30 \text{ mA}, I_B = 3 \text{ mA}$			0.1	V
Transition frequency	f_T	$V_{CB} = 6 \text{ V}, I_E = -4 \text{ mA}, f = 200 \text{ MHz}$		80		MHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$			7	pF
ON resistance *2	R_{on}			1.0		Ω

Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *1: Rank classification

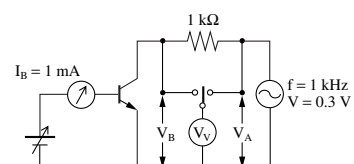
Rank	S	T	No rank
h_{FE}	500 to 1500	800 to 2500	500 to 2500

Product of no-rank classification is not marked.

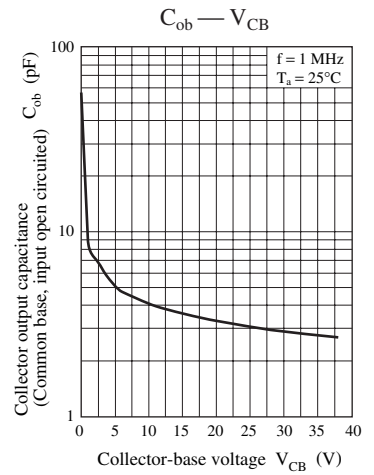
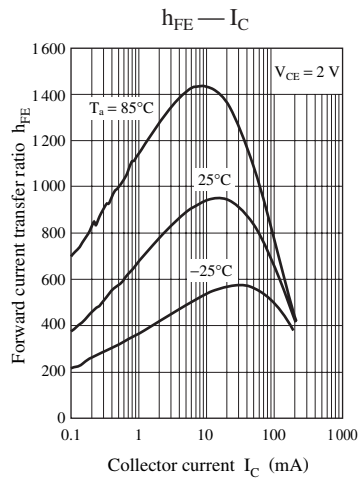
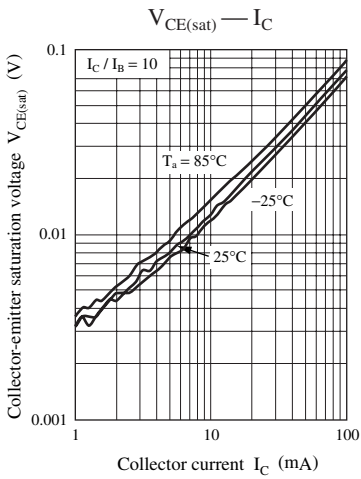
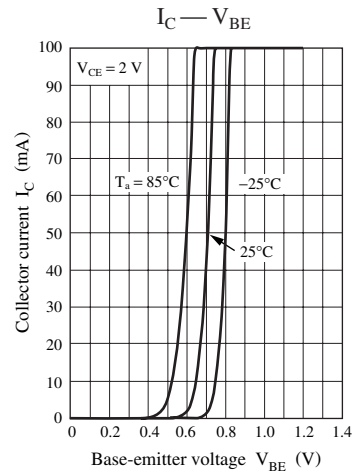
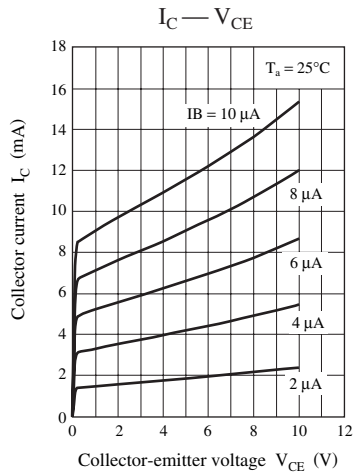
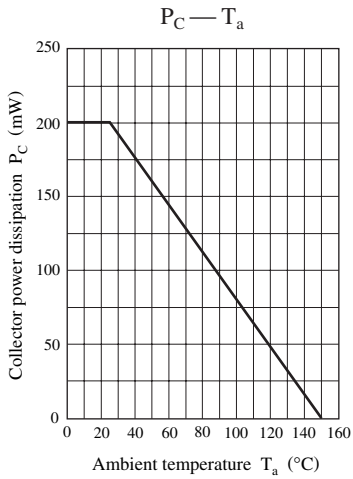


Marking symbol: 3W

*2: R_{on} Measurement circuit



$$R_{on} = \frac{V_B}{V_A - V_B} \times 1000 (\Omega)$$



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